

Prosumption as a factor of sustainable development

Prosumpcja jako czynnik zrównoważonego rozwoju

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Abstract

The article raises the issue of prosumption as the increasingly widespread pattern of consumer behaviour leading to independence or the significant reduction of the use of some types of services and products on the market principles. It indicated the pro-ecological conditions of this group of consumer behaviours and their importance for the practical realisation of the concept of sustainable development. It reviewed the existing approaches concerning prosumption and sustainable development. Taking into account the current state of knowledge, the concept of the prosumment product was proposed, which can be treated as the involvement of citizens in the potential spheres of prosumment actions to achieve sustainable development and providing the tangible and intangible benefits to people involved in its creation. It has also paid attention to the key areas of prosumption which impact the natural environment, also the potential courses of action were indicated, which should be taken by the state policy makers and the non-governmental organisations for the development of prosumer activity.

Key words: prosumption, prosumer, municipal services, sustainable development

Streszczenie

Artykuł porusza zagadnienie prosumpcji jako coraz powszechniejszego wzorca zachowań konsumenckich prowadzących do uniezależnienia się lub znacznego ograniczenia korzystania z niektórych rodzajów usług i produktów na zasadach rynkowych. Wskazano uwarunkowania proekologiczne tej grupy zachowań konsumpcyjnych oraz ich znaczenie dla praktycznego zrealizowania koncepcji zrównoważonego rozwoju. Dokonano przeglądu dotychczasowych podejść dotyczących prosumpcji i zrównoważonego rozwoju. Uwzględniając obecny stan wiedzy zaproponowano koncepcję produktu prosumenckiego, który można traktować jako zaangażowanie się obywateli w potencjalne sfery działań prosumenckich służących osiągnięciu zrównoważonego rozwoju oraz dających korzyści materialne i pozamaterialne osobom zaangażowanym w jego powstawanie. W artykule zwrócono także uwagę na kluczowe dziedziny prosumpcji mające wpływ na stan środowiska naturalnego oraz wskazano potencjalne kierunki działań, które powinni podjąć decydenci państwowi oraz organizacje pozarządowe dla rozwoju aktywności prosumenckiej.

Słowa kluczowe: prosumpcja, prosumment, usługi komunalne, zrównoważony rozwój

Introduction

Prosumption is a multidimensional phenomenon, which can be viewed from different perspectives. From a sociological perspective, it is seen as a phenomenon creating a new form of capitalist society based on prosumption, the so-called prosumment society (Ritzer et al., 2012, p. 379-398). From the economic perspective, the attention is paid to the market

dimension, related to its occurrence. Reference is made to its economic importance, e.g., the development of stores with products, which are used by consumers for creating the final product (shops with materials for handiwork). While the management perspective allows to treat it as a part of the company's strategy aimed at the cooperation with customers during production and sale of consumer goods and services. In this sense, prosumption means initiating

and including the customer into cooperation in the creation of the final product. This is done by preparing a standardised product or service, which then can be adapted by the consumer to own needs. By doing so, the long-term loyalty of consumers is built. Therefore, prosumption becomes a factor strengthening the competitive position of the company on the market (Michale, 1997). In turn, the technical perspective pays attention to technical solutions used in presumption, e.g., in the energy sector (Bremdal, 2011, p. 1-25). These approaches indicate various aspects of the occurrence of prosumption in the economy and society.

Prosumption and prosumer

The word *prosumer* is a neologism made up of the words *producer* and *consumer*. For the first time this term was characterised by Toffler (1981) in his book *The third wave*. According to Toffler, there is a change of the society and consumers. Some of them change into manufacturers of certain goods and services in different time periods related to the socio-economic development. He called these periods the waves. He defined their three types. In the first wave, agriculture played a dominant position. According to Toffler, in this period, most people were *prosumers* and produced mainly food (cultivating the land and dealt with crafts peripherally) for their own needs. During this period, the people were the producer and consumer at the same time of what they created. In the second wave, which emerged with the industrial revolution at the end of the 18th century, the factory became a dominant institution. During this period, most people worked in factories (and spent most of their time in them). This type of situation led to the inability to manufacture certain services and products for their needs. This resulted in the cessation of activities of the prosumption nature accompanying the first wave, and instead the consumption on a large scale started to emerge. The next post-industrial period related with the so-called third wave according to Toffler, is characterised by the re-withdrawal to prosumption. In contrast to the motives of prosumption in the first wave, the desire for individuality and diversity of customers is a motive of prosumption (Toffler, 1981). Prosumption accompanying it offers the opportunity to express own individuality and meeting the growing diversity of customers' needs and requirements (Gilmore & Pine, 1996).

Therefore, the consumer takes a more active role and becomes an experienced business partner (Gibbert, Leibold, and Probst, 2002). Currently, companies have in mind that the customers are becoming active, well-informed and constitute a part of the organisation (Pralhad & Ramaswamy, 2004). Customers' ideas, suggestions and complaints are used as a driving force for innovation (Mazur & Archakova,

2011). Since there is no clear definition of the prosumer term, in literature we can find different grasps, which are trying to determine the consumer's involvement before the proper process of product purchase or after it in the context of meeting his needs. This problem fits in the issues related to prosumption.

A. Toffler has rejected the traditional concept of the binary consumer, indicating the creation of a new type of consumer, who is involved in the search of products which best fit his expectations. Toffler, forecasting the role of a producer and consumer in the future, pointed to the emergence of a new role, which he called presumption (Toffler, 2006). In this understanding, production and consumption are elements of the same cycle. The value is generated when consumers make an effort and pay attention to the products *produced* by themselves (van Raaij, 2001, p. 332). While prosumption is a process, and not a single act. It involves the integration of the physical and mental activity with the socio-psychological experience. People participating in this process involve money, time, effort and skills, expecting certain benefits (Lebiejko, 2011, p. 65). The Toffler approach has become an inspiration for many researchers, who have modified this concept, adapting it to the changing economic and social conditions. Relations of the producer with the consumer are undergoing changes. Kotler (1986) refers to the prosumer concept from the marketing point of view. Because the so-called third wave is characterised by de-industrialisation, moving away from the mass production and demarketisation, these phenomena result in the consequences for the studies and practices of marketing. Kotler summarises the views of Toffler with reference of their results to marketing (see table 1).

According to Kotler, the forces which will foster the development of prosumption include: the growing work costs, structural unemployment, demand for goods and higher quality services, development of new technologies enabling people to take part in designing non-standard goods, as well as the general increase of education. Kotler also indicates the conditions inhibiting prosumption. They threaten the interest groups, e.g., like professionals, manufacturers of some goods and services, and labour unions. These entities can take the protectionist measures to slow down the development of prosumption striving for the beneficial legal laws, like e.g., the construction regulations (PIHL, 2008).

Prosumers look for values provided by products and services, which provide benefits in terms of saving time, money, energy (see figure 1). They also expect that producers will provide them with products at the lowest possible prices and without additional hidden costs. They are also interested in environmentally friendly products. There are also pragmatic users of products, for whom the modern technologies and en-

Table 1. Chart by Kotler (1986) summarising Toffler’s main ideas

	Thesis First Wave	Antithesis Second Wave	Synthesis Third Wave
Dominant institution	Agriculture	Industry (factory)	Home
Mix of prosumers & consumers	Many prosumers (Sector A is large) Few consumers (Sector B is small)	Few Prosuments (Sector A is small) Many consumers (Sector B is large)	More prosuments (Sector A gets larger) Fewer consumers (Sector N gets smaller)
Dominant processes	Self-production	Industrialization, Marketialization	De-industrialization De-marketization De-massification
Norm	Survival	Efficiency (as producers) Indulgence (as consumers)	Idividuation
Social nexus	Kinship and friendship; tribe	Contracts and transac- tions: workplace	Family and friends; neigh- bourhood

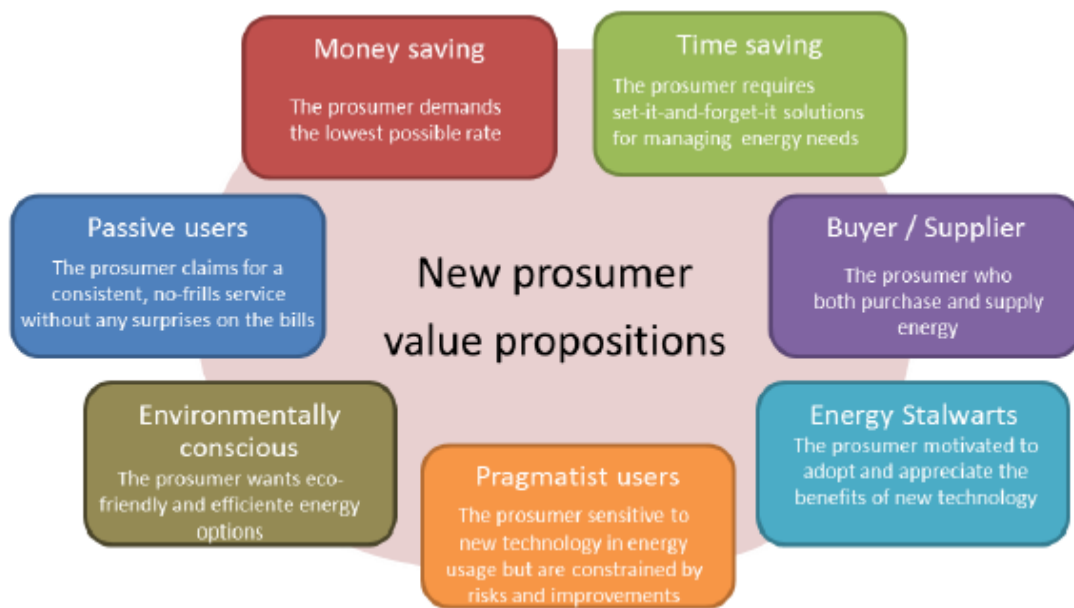


Figure 1. New prosumer value propositions, source: Rodriguez-Molina et al., 2011

ergy use related to their use are important. The changes introduced by manufacturers in the future product versions are also important to them.

The discussed concepts take the active participation of people in the production of the consumer goods as the starting point, which is characterised by the uniqueness and adjustment to their expectations. Consumers engaged in activities for the new product are the co-authors of the new value. This most often takes place in the area of mass media. The idea of prosumption in creating new values was presented in an interesting way by A. Bruns, while analysing the communication process in Web 2.0, has indicated the creation of the so-called produsage, that is a person, who plays a hybrid role between the user and producer (Bruns, 2008, p. 21). Its role is the continuous construction and the expansion of the already existing contents for the further improvement. The products of the produsagers work are not separate products nor they create directly new products, but

they create a new intangible value. An important feature of this type of consumers is to share knowledge and its continuous improvement. A produsage using open source technologies, is a creator and at the same time a user of the contents in different Internet environments, such as Wikipedia, Second Life, blogs, social networks, e.g., You Tube MOVEN, Flickr, etc. By sharing experiences and knowledge with others, he creates the identity and symbolic value of the new product (Majboub, 2014, p. 12-31). The idea of produsage is used in computer games, in which the player is often both the user and the co-creator. From the studies of A. Tolino on prosumption in computer games it results that producers of computer games often encourage players to modify their products, so they are more attractive also for other users. Players become co-producers of games, introducing new solutions, new game elements, what often determines the success of the given game on the market (Tolino, 2010, p. 339-369).

Ecological conditions for presumption

Reducing emissions and the desire to limit the impact of the investment on the environment – especially in the European Union – is a megatrend realised consequently for over 20 years. It aims to counteract the climate changes and reduction of the impact of other harmful emissions on the environment. It is associated with the model of development of the European Union, where an important growth driver includes innovations, investments in green technologies and the improvement of effectiveness. Reduction of emissions from the energy sector subject to the EU legislature concerns not only the limitation of the greenhouse gas emissions (including CO₂), but also the limitation of low emissions and all air pollutants (Polish energy sector..., 2011).

Greenhouse gas emissions (including CO₂ and the ways to reduce them have been the socially and politically supported subject for several decades. This is dictated by the trend visible in the international politics and legislation for years, which concerns sustainable development, environmental protection, prevention of air pollution and climate changes. Democratic societies, especially in the densely populated Europe, are trying to improve the environment – especially in their immediate surroundings (Polish energy sector ..., 2016).

Recognition of the problems associated with the progressive degradation of the natural environment and the increase in scarcity of its resources, over time has forced the changes both in the ways of managing the natural environment and its resources, as well as in the socially accepted value systems and the associated lifestyles. In the sphere of consumption it meant the emergence of a new trend, defined as the greening of consumption, eco consumption, ecological consumption or sustainable consumption.

According to the European Environmental Agency, sustainable consumption is defined as: the holistic approach aimed at minimising the impact of social production and consumption systems on the natural environment. The objective of sustainable consumption is to maximise the efficiency and performance in terms of the production and delivery of products, services and investments so as to meet the current needs of societies without reducing the possibilities of future generations to meet their needs (State of the environment, 2007).

Sustainable consumption is the optimal, conscious and responsible use of the available natural resources, goods and services at the level of individuals, households, communities and local communities, business communities, local governments, national governments and international structures, in accordance with the principles of sustainable development. The attitude of sustainable consumption means less waste, production of waste and pollution, and the selection of goods and services, which to the

greatest extent meet certain ethical, social and environmental criteria (Through sustainable consumption, 2012).

Consumers in highly developed societies increasingly reveal their ecological awareness, hence the growing interest in eco consumption and eco industry. They become more sensitive to the damages caused to the environment in the process of using the products. They realise that their actions can cause external side effects not only in the local dimension, but also the global one, because one of the effects of mass consumption is the huge mass of post-consumer waste, which is equally harmful like the post-production one (Bywalec, Rudnicki, 2002, p. 130). Prosumer initiatives related to the use of the renewable energy sources are one of the key actions of the horizontal policy of the European Union in terms of climate protection, energy safety and environmental protection. Reducing emissions of harmful substances (mainly greenhouse gases), the positive impact on the safety of energy supply and effective use of energy are important factors for the development of the domestic energy systems (Bańkowski, Żmijewski, 2012, p. 13).

Prosumption and the bases for sustainable development

In general, we can talk about two basic approaches to sustainable development. The first approach is practical-economic (economic) and is identified with the paradigm of protection and environment management. In this sense, sustainable development is perceived as agreement of the traditional economic growth with the ecological conditions. The second look at sustainable development has the ideological and historiosophical nature. This understanding challenges the current models of civilisation development and focuses on searching for new behaviours and social goals, and in their context the new forms of civilisation development. Sustainable development holistically recognises the individual elements of civilisation. It includes the management of natural, economic and human resources, spatial management, institutional solutions, moral sphere, shaping the awareness or the selection of specific lifestyle. In fact, it is about searching and formulating the new, ecologically optimal and socially satisfactory vision of civilisation (Piontek, 2002, p. 51).

The essence of sustainable development is to seek to connect the ecological, economic and social accounts. The mechanism of functioning of this global concept is brought down to the achievement of three basic goals:

- 1) ecological – consisting of stopping the environmental degradation and elimination of its threats,
- 2) economic – expressed in the satisfaction of the basic material needs of the people using the

technique and technology that do not damage the environment, and

- 3) social and humanitarian – which assumes the security of the social minimum (ending hunger, misery and poverty), health protection, development of the spiritual sphere of the man (culture), safety and education (Machowski, 2003, p. 100-101).

The increasing awareness of responsibility for the global scale of environmental changes generated even by the individual actions of the man has led to searching for such a model of development, which will ensure the implementation of the human needs while limiting the damages caused to the environment at the same time. Sustainable development has thus become the answer to the maturing need of a new approach to the environmental resources and their use for the needs of men and economy. This approach should include the following features of development, which should include:

- **immaterialisation:** – an increase of a qualitative nature, increasing the share of the immaterial production in the global production (serving the economy – the growing importance of the service sector),
- **dematerialisation** – eco efficiency, separation of the relations between environmental damages and the material production,
- **decarbonisation** – separating relations between the economic growth and the increase in the CO₂ production,
- **decoupling** – the separation of the relations between the economic growth and the increase of the transport needs (Tapio et al. 2007, for: Skala-Późniak, 2010).

Prosumer initiatives fit into the implementation of the above-listed economic, environmental and social objectives which the sustainable development should serve. In relation to the economic objectives, prosumption enables: incorporation of the external costs to the prices of fuels and secondary energy, short times of the investment implementation, higher rates of the investment return, potential increase, position and competitive advantage of prosumers of energy, growth of the number of investors, energy producers, reserving in the plans of spatial development the conditions for joining energy prosumers, knowledge exchange and transfer of eco-innovative prosumer technologies, creating new workplaces.

Prosumer actions enable the implementation of the environmental objectives of sustainable development. This is manifested in: the reduction of the lithosphere pollution, hydrosphere, aerosphere, the ability to self-reconstruction of the regional natural environment, regional adjustment in relation to the natural conditions (technical and economic energy potential, environmental capacity) and biological diversity, adjustment of the space of the regional prosumer energy sector including the protected areas (in the EU, e.g., according to the protocol NATURA

2000), determination of the environment absorption and the state of its resources (in the qualitative and quantitative approach), introduction of the reliable, comprehensive assessment of the environment, the skill to manage the protected areas without the harm to the life of their inhabitants. Projects enhancing the prosumer activity also serve the social development, which is also an element of sustainable development. The implementation of this goal, thanks to prosumer initiatives, is expressed in: culture of energy consumption stimulating the growth of ecological awareness, education systems (among others, in the field of ecology, eco innovative energy solutions dedicated to prosumers), improvement of the social welfare and thus the tendency to pay (Cost-Benefit Analysis), increase of the activity of local societies, participation of inhabitants in the public life, stimulation of the economic, financial activity and legislative mechanisms supporting cations for the prosumer energy in the region, creating motivational systems for prosumers of energy, preventing poverty and social exclusion, ensuring the equal access to prosumer technologies, as well as products from the portfolio of the polygeneration energy (Bajor, 2014, p. 7-9).

The role of the prosumer product for the preservation of the environment

Much of the studies on prosumption focused on the mere process and essence. However, it is difficult to find closer references to the significant spheres of this activity from the point of view of sustainable development. The widely exposed area of these actions is the use of renewable energy sources for the production of electricity. Here, the attention is paid to the use of photovoltaic sets or fans. Therefore, it is worth reflecting on other fields of prosumer actions, which can be significant for achieving sustainable development. The area of this type can be the construction and modernisation of residential homes, especially single family ones. The owners often join the mere stage of the creation of the new building or its modernisation. This type of activities aim to meet their residential needs, but also the ecological effect should be included in this type of actions, for this type of undertaking and the possibility to reduce or limit the dangers of the thermal installations related to heating of water or rooms for the natural environment. We can thus conclude that the activity related to the construction or modernisation of homes can have the nature of the prosumer actions.

Another sphere of potential prosumer actions important for the condition of the environment is the use of waste from the so-called organic fraction of households and the amount of leaves and mowed grass for the production of compost in order to use it on the household gardens or the potential resale.

Another field of prosumer actions potentially supporting the environment involves the cultivation in the household gardens of vegetables, decorative

plants and used for improving health or fertilisation of the soil. An example of this type of plants includes the nettle, which is a herb and the main element of the natural fertiliser, which has a favourable effect on the plant growth.

Prosumer actions can also involve the use of used euro pallets after construction materials or wood briquettes. They can be used for making garden furniture, and therefore limit the purchase of garden furniture made of plastic, the production of which is harmful to the environment.

The above-mentioned potential spheres of prosumer actions can be treated as the prosumer product used for achieving sustainable development and giving tangible and intangible benefits to people involved in its formation. Intangible benefits resulting from the above-described prosumer product can include the improvement of the health condition of people producing it, resulting from the need of the independent use of the specified physical works, in relation to its formation, what can be an alternative for using a gym, fitness centres and medical advice due to the preventive aspect of the physical activity related to prosumption. The scope of the prosumer product determines the amount of spheres, in which the given person undertook prosumer actions. The involvement of the potential prosumers in them is the effect of three groups of conditions, which include: the necessary expenditures for the specified prosumer undertaking, the scope of knowledge on the given prosumer area and the availability of technologies enabling the implementation of the given prosumer activity. Expenditures in this case include the contribution to work, the necessary time, which you need to have in relation to the given prosumer undertaking and the financial resources for this goal. Another important factor contributing to the formation of the prosumer product is knowledge related to the given sphere of prosumer actions. Sometimes it requires the involvement of the mere potential prosumer into finding the adequate information online or in the literature. In some cases, the role of this type can be fulfilled by the state programs promoting prosumer undertakings from the specified fields. The third important factor determining the formation of the prosumer product is the available technologies, which are used in relation to the specified prosumer undertakings.

From the point of view of caring for the natural environment, it seems reasonable to create conditions for the involvement of people potentially interested in prosumption. Currently, in Poland and in the EU the programs used for developing the prosumer energy sector are developed. It seems that the similar initiatives should be developed in the field of using prosumption in a single- and multi-family construction. This type of programs should be accompanied by the appropriate legislative changes and information campaigns supported by ecological education in the period of education. With regard to the

possibility of production of compost or the cultivation of vegetables and plants constituting the base for the natural fertiliser to be used in the household gardens the educational actions should be conducted for this purpose. This role can be performed by the companies providing municipal services, environmental foundations, schools during biology classes. What is also important here is also the own activity of potential prosumers related to searching information on how to independently create this type of eco products. While when it comes to the use of euro pallets after construction materials or other products for producing garden furniture, people interested in this type of actions can find the required information online without too many problems. This type of activity should be supported by programs supporting the online hobby services or offering eco crafts.

Summary

The phenomenon of prosumption is multidimensional. It is favoured by various conditions, which include the development of technologies enabling the independent production of products and services, which in the earlier phases of economic development could be purchased only on the market principles or on principles determined by the state.

There are several common features of prosumers. These are:

- the need to combine work and family life and the possession of communication tools providing contact with the family and work anywhere in the world,
- the need for ease of use of specific products and services,
- interest in entertainment, on what they are willing to spend more than other consumer groups,
- the willingness to have access to files from home with the same ease as they do it at work, mobility through the use of devices, such as the mobile phone, iPod and laptop, intensive use of the Internet and mobile technologies while working at home.

Prosumption as a social activity can be used for the practical implementation of the concept of sustainable development. The common action of political, business decision makers and non-governmental organisation is significant for this purpose. The joint activities of the listed entities decide on the scale and content of the prosumer product described in this study.

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